

fatal to the parent forms, yet if the water is boiled for a few minutes, from 2 to 15, we may insure the death of nearly or quite all of these micro-organisms. This boiling, however, will not remove the dissolved organic matter. Effective filtration not only abstracts suspended matter, but removes by adhesion and oxidation much of this dissolved organic matter. Sand filtration on the large scale lessens the amount of organic matter in solution according to the thickness of the filtering medium and the rate at which the water passes through the medium.

Some of the best filtering materials for domestic purposes are animal charcoal and spongy iron, which latter Bishop has shown to be capable of destroying bacterial life.

Dr. Albert R. Leeds, of New Jersey, in a paper before the American Association for the Advancement of Science, at its last session, upon the causes of typhoid fever and the means of eliminating such causes, proposes a method to rid water containing the typhoid bacillus by adding one-half grain of alum to each gallon of the water to be used. By this method, he says, all the peaty matter is precipitated along with the bacteria, leaving a water brilliant and limpid. The alumina is all taken out by the precipitation, and chemical tests failed to reveal its presence in the supernatant liquid. In a contaminated water containing 8,000 bacteria per c. c., the author showed that after this treatment the water only contained 8 bacteria per cubic centimetre.

Respectfully submitted.

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#### REPORT No. 4.

CENTRAL EXPERIMENTAL FARM LABORATORY,  
OTTAWA, 4th February, 1888.

"Saline water from boring 170 feet deep on base line in Section 31, Township 4, Range 1, west, Manitoba. Strong spring in abundant supply." Sent by Mr. John Lowe, Acting Deputy Minister, Department of Agriculture.

Prof. WM. SAUNDERS,  
Director, Dominion Experimental Farms.

SIR,—As the result of my analysis of the above saline water, I have the honor to report as follows:—

Constituents expressed in parts per 1,000 of the water—

Sodium (Na.).....	6.573
Magnesium (Mg.).....	.577
Calcium (Ca.).....	1.180
Iron and Aluminium (Fe. & Al.), (traces).	
Silicon (Si.), (slight traces).	
Chlorine.....	10.785
Sulphuric Acid (SO <sub>4</sub> ).....	2.122
Carbonic Acid (CO <sub>2</sub> ), traces.	

21.237

Total solid contents by direct experiment, dried at 180° c.. 21.198

From the above it may be deduced that the principal compound is common salt, amounting to 17.153 parts per 1000, or 1200.71 grains per gallon. The remaining